*Building The Wireless Future*

**CTIA**
Cellular Telecommunications Industry Association
1250 Connecticut Avenue, N.W.
Suite 200
Washington, D.C. 20036
202-785-0081 Telephone
202-785-0721 Fax

February 18, 1998



Ms. Magalie R. Salas
Secretary
Federal Communications Commission
1919 M Street, NW Room 222
Washington DC 20554

**Re: Ex Parte Presentation**
CC Docket # 97-213 (CALEA)

Dear Ms. Salas:

On Tuesday, February 17, 1998, the Cellular Telecommunications Industry Association ("CTIA") conducted a tutorial concerning the above-captioned proceeding, which was attended by representatives from CTIA, representatives from CTIA member companies and representatives from the FCC. The CTIA representatives were Brian Fontes, Michael Altschul, Randall Coleman, Ed Hall and Wendy Chow. CTIA member companies were represented by Howard Woolley of Bell Atlantic Corporation, Linda Linderman of AT&T Wireless Services, Roger Sherman of Sprint PCS, Jonathan Chambers of Sprint PCS, and Jeff Grollick of SCC Corporation. The FCC representatives were Daniel Phythyon, Daniel Grosh, Nancy Boocker, John Cimko, Katherine Power, Carrie Mann, Kristina Harms and Marie Long, of the Wireless Telecommunications Bureau, Larry Strickling, Office of General Counsel, Paul Misener, Office of Commissioner Furchtgott-Roth, Karen Gulick, Office of Commisioner Tristani, and Elliot Maxwell, Office of Plans and Policy.

Pursuant to Section 1.1206 of the Commission's Rules, an original and one copy of this letter and its attachments are being filed with your office. If you have any questions concerning this submission, please contact the undersigned.

Sincerely,

Cleveland Lawrence III



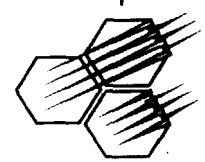


# CTIA

FCC

Wireless Operations and Issues

February 17, 1998



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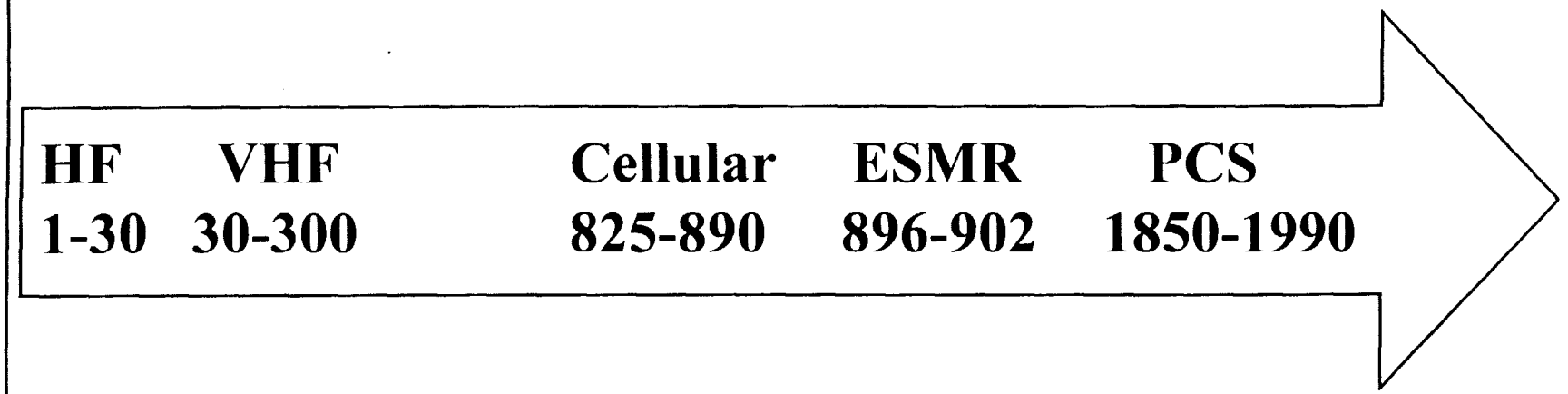
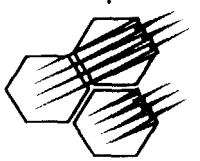
# RF Spectrum in MHz



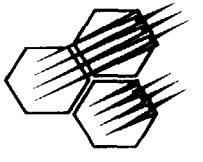
# Yesterday's Wireless

Mobile telephony has been available since 1921:

- 30-50 MHz Band
- 150-174 MHz Band
- 450-512 MHz band

1946 - 6 ch, 60 KHz ea., 150 MHz

1956 - 12 ch, 30 KHz ea..



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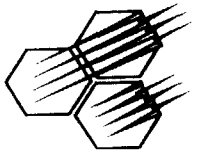
# Yesterday's Wireless

1958 - 17 add chs at 150 MHz,
Plus 12 chs at 450 MHz

1960 - IMTS (Improved Mobile Telephone Service), auto dialing, (no operator). 450 MHz



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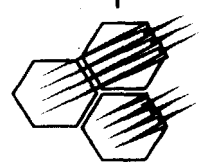
# Today's Wireless *Cellular*

1980's - AMPS (Advanced Mobile Phone Service) "Cellular", "Cell Phone", "Car Phone"

RF Range: 825 - 890 MHz

Bands: A and B bands each with 416 voice and 21 control chs

Air Interface: Analog (FDMA)



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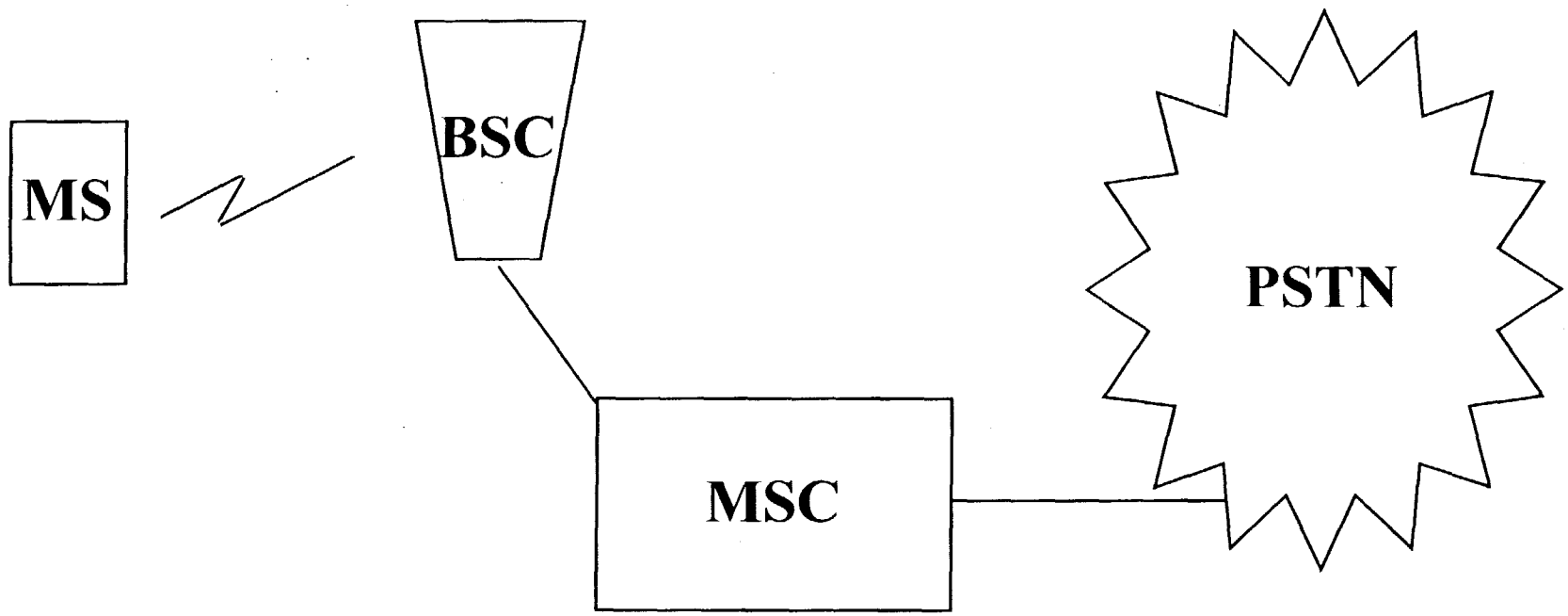
# Network Elements



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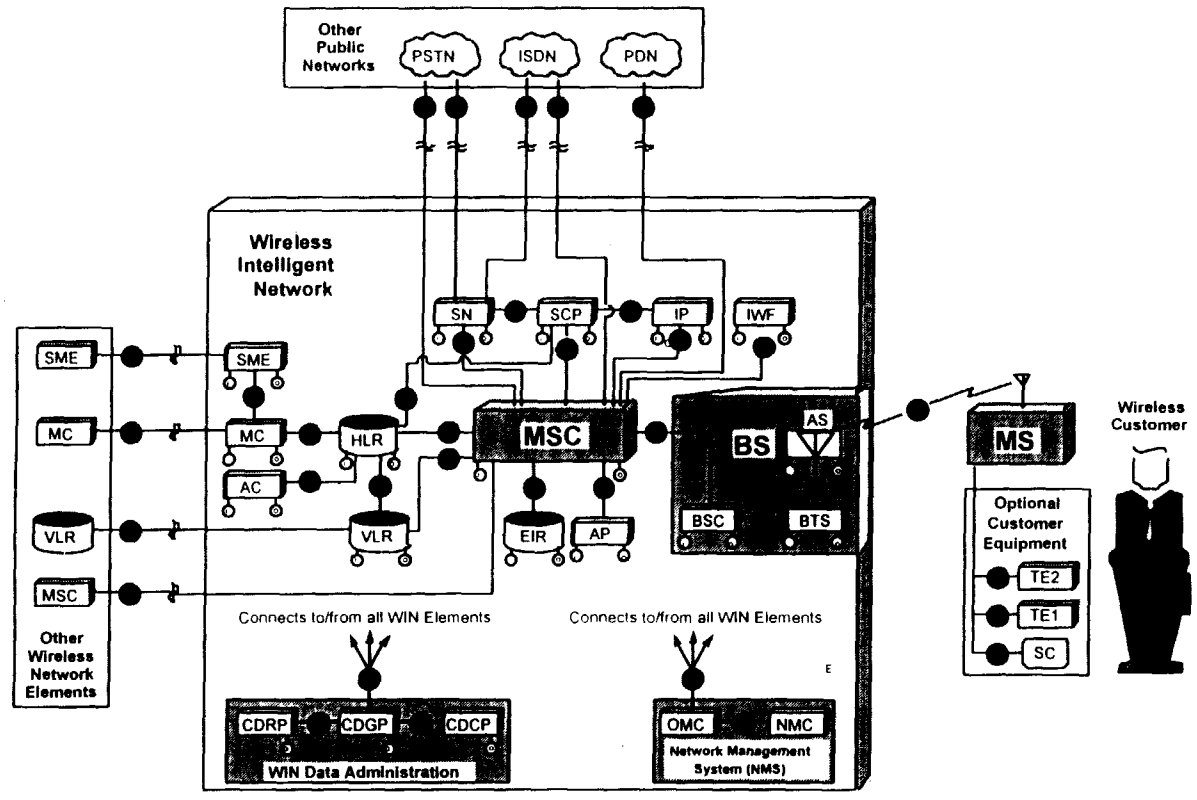
# Wireless Intelligent Network Reference Model




**Legend**

| | |
|---|---|
| AC | Authentication Center |
| AP | Adjunct Processor |
| AS | Antenna System |
| BS | Base Station |
| BSC | Base Station Controller |
| BTS | Base Transceiver System |
| CDCP | Call Detail Collection Point |
| CDGP | Call Detail Generation Point |
| CDRP | Call Detail Rating Point |
| EIR | Equipment Identity Register |
| HLR | Home Location Register |
| IP | Intelligent Peripheral |
| ISDN | Integrated Services Digital Network |
| IWF | Interworking Function |
| MC | Message Center |
| MS | Mobile Station |
| MSC | Mobile Switching Center |
| NMC | Network Management Center |
| OMC | Operations and Maintenance Center |
| PDN | Public Data Network |
| PSTN | Public Switched Telephone Network |
| SC | Smart Card |
| SCP | Service Control Point |
| SME | Short Message Entity |
| SN | Service Node |
| TE1 | Terminal Equipment Type 1 |
| TE2 | Terminal Equipment Type 2 |
| VLR | Visitor Location Register |

**Key**

- Network Element or Function
- Data Administration/Network Management Connection
- Interface Reference Point
- Database Element
- Telecommunications Network
- Antenna System
- Collection of Network Elements or Functions

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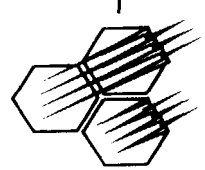
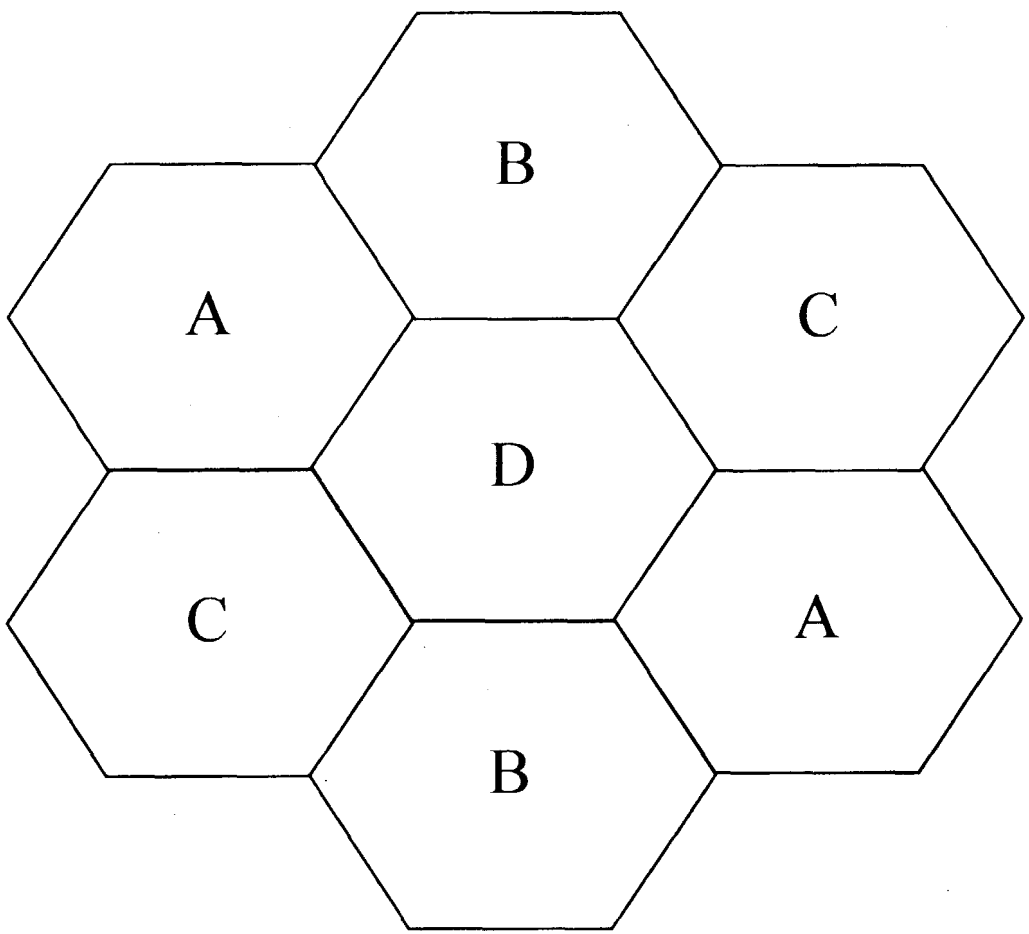
# Today's Wireless *Cellular*

Geometry: Service Area divided into cells:

- Low power
- Small coverage
- Frequency re-use
- MSA, RSA



# Frequency Re-Use



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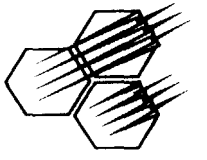
# Today's Wireless *Cellular*

1990's - Higher than estimated Mobile Stations (MS) in use

Need for more efficient use of allotted RF spectrum:

D - AMPS

- TDMA (TIA, IS-54 and IS-136)
- CDMA (TIA, IS-95)



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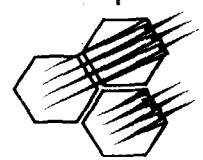
# Today's Wireless *Cellular*

- Implementation is a carriers option
- CDMA Phone cannot provide service in a TDMA environment and vice versa
- Default system is FDMA (analog)
- Dual Mode Phones



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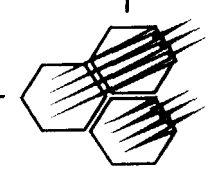
# Today's Wireless *PCS*

**PCS**: Personal Comm Service

RF Band: 1850 - 1990 MHz,
"1900" "1.9" GHz

Bands: A, B, C, D, E, F,

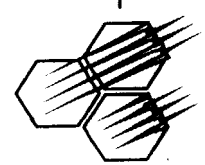
Air Interface: All Digital (no analog)
TDMA; CDMA; PCS 1900 (GSM)



# Today's Wireless

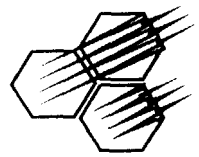
Geometry:

- Same as cellular
- Frequency re-use
- MTA, BTA



# Today's Wireless

- **PCS** only MS are not designed to operate in a 800 MHz "Cellular" environment
- Dual Mode, Dual Band.... Multi?
- Market Driven



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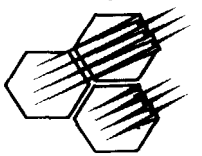
# Tomorrow's Wireless

Feature and Capability Rich:

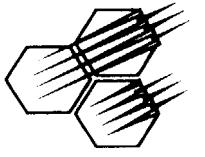
- Short Messages (SMS)
- Caller ID
- E9-1-1
- TTY / HAC (Sec 255)
- NP
- LAES

Seamless, Boarderless, Roaming



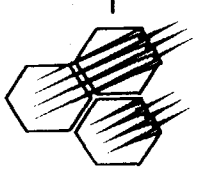
# Policy Issues

- Siting
- Section 255
  - HAC
  - TTY
- Number Portability
- CALEA
- E9-1-1



# Siting

- Reliable Coverage
- Cell Splitting



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# Section 255

- Access Provided Through Handset

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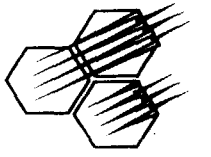
# Number Portability

- 6/99 Implementation Date
- 100 Largest MSAs
- ALL Cellular Systems Must Provide Roaming



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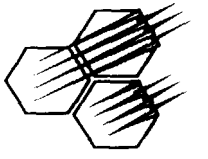
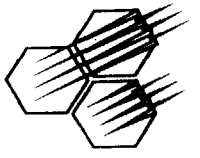
# Number Portability

- Separate MIN from MDN
- Change Every Operational Support System
- CTIA Petition



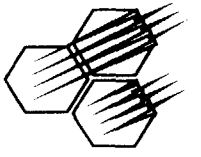
# CALEA

- Communications Assistance for Law Enforcement Act (CALEA)
- TIA Standards activity to build Capability Document
- Interim Standard J-STD-025
- Waiting ANSI Accreditation



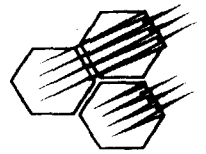
# FCC R&O Requirements

- Phase I
  - Provide Callers location relative to initial Base Station or Cell Site
  - Must be available by 4/1/98
- Phase II
  - Provide initial latitude and longitude of caller within 125m RMS (67% of the time)
  - Must be available by 10/1/2001



# FCC R&O Requirements

- PSAP must
  - Prove capability to receive data
  - Prove funding mechanism is in place



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# FCC Memorandum Opinion and Order — 97-402

- Carriers must forward all calls
  - Subscribed, Unsubscribed, Uninitialized
- If DN is not known by Serving Carrier, obligation is to deliver call only
- TTY for Digital date extended until 10/1/98
- Impact on J-STD-034 will be evaluated